Foreign direct investment, trade openness and Economic Growth in Algeria: From 1970 to 2015.

MEBARKI abdelillah, Doctorant,

Local Authorities and Local Development Management Laboratory.
University of Mascara
mebarkiabdelillah2015@gmail.com.

MOKHTARI Fayeçal,

Local Authorities and Local Development Management Laboratory.
University of Mascara
mokhtarifayecal@gmail.com.

Abstract: This study examines the relationship between foreign direct investment, trade openness and economic growth in Algeria over the period 1970-2015. By using the Auto Regressive Distributed Lag (ARDL) co integration, the results based on the bounds testing procedure confirm the existence of a long-run relationship between direct investment, trade openness and economic growth. Both trade openness and foreign direct investment has an insignificantly positive effect on economic growth.

Key words: Fdi, Trade openness, Economic Growth, ARDL, Algeria.

Jel Codes : F210; F130; 040; C13; O50.

Résumé: Cette étude examine la relation entre l'investissement directe étranger, l'ouverture économique et la croissance en Algérie sur la période 1970-2015, en utilisant la Co-intégration ARDL (Auto Regressive Distributed Lag). Les résultats basés sur la procédure de test des limites confirment l'existence d'une relation à long terme entre l'ouverture commerciale, l'investissement directe étranger et la croissance économique. L'ouverture commerciale et l'investissement directe étranger ont tous deux un effet positif et insignifiant sur la croissance économique.

Mots clés: IDE, l'overture commercial, la croissance économique, ARDL, Algérie.

ملخص: تهدف هذه الدراسة إلى تحليل أثر الاستثمار الأجنبي المباشر والانفتاح التجاري على النمو الاقتصادي في الجزائر خلال الفترة 1970–2015، بالاعتماد على نموذج الانحدار للفجوات الموزعة (ARDL) ونموذج تصحيح الخطأ (ECM). وتشير النتائج المستندة على إجراء اختبار الحدود إلى وجود علاقة طويلة الأمد بين الاستثمار المباشر، الانفتاح التجاري والنمو الاقتصادي، وأن الانفتاح التجاري والاستثمار الأجنبي المباشر لهما تأثير إيجابي وغير معنوي على النمو الاقتصادي.

الكلمات المفتاحية: الاستثمار الأجنبي المباشر، الانفتاح التجاري، النمو الاقتصادي، الجزائر.

Introduction:

Foreign direct investment and trade openness are well known as the important factors in the economic growth process. Fdi can increase the host country's export capacity, causing the country to increase its foreign exchange earnings. It can also encourage the creation of new jobs, enhance technologies transfer and boost economic growth. (Belloumi, Mounir, 2014). The impact of trade openness on economic growth can be positive and significant due to the accumulation of physical capital and technological transfer and improvement in macroeconomic policies (Wacziarg, 2001). Trade also may bring about

the upgrading of skills through the importation or adoption of innovation. In the last decades, the empirical studies attempt to investigate the impact of the interaction between foreign direct investment and trade openness interaction on economic growth (Liargovas, Skandalis, 2012; Koskei, Buigut, Kibet 2013; Yaoxing *Et Al*, 2010; Frimpong, Oteng-Abayie, 2006). All this studies concluded that foreign direct investment and openness promote economic growth. However, they failed to determine the direction of this interaction in many countries.

The objective of this paper is to analyze the impact of foreign direct investment and trade openness on economic growth in Algeria. The study is relevant because the twin policy of Fdi and trade openness have been integral pre-occupation of government of Algeria since Structural Adjustment program of 1994. In this regard, the study uses a more recent data analysis technique (the bounds testing co-integration approach by Pesaran et al. 2001). We use annual time series data over the period of 1970 up to 2015. By implementing Autoregressive Distributive Lags (ARDL) and error correction model (ECM).

In order to achieve our objective, the article was organized in four sections. In the second section we will carry out a literature review that concern our subject, and in the third section we will present the empirical Studies. The last section will be used to interpret and comment on our results.

1- Literature review:

a- Theoritical linkage :

The term foreign direct investment is defined in Algeria as an « equity investment made by a non-resident entity with a minimum threshold level of foreign equity share relative to the total value of the investment (Reggad, 2008) ». The literature studies shows that fdi play an important role in the growth process through technology transfer. This transfer can take place through a variety of channels that involve the transmission of ideas, technologies, and acquisition of human capital. Besides these channels, fdi is considered to be a major channel for the access to advanced technologies (Borensztein, De Gregorio, Lee, 1998). In addition, foreign direct investment can increase the rate of technical progress through contagion effect from the more advanced technology used by foreign firms (Findlay, 1978). Therefore, fdi can affect growth by the generation of productivity spillovers (Blomström, Persson, 1983). This affect arise from the competitive interaction between foreign and domestic firms. The presence of multinational firms can increase local competition, pushing local firms to improve productivity (Kokko, 1994).

The new theories of growth supported by (Romer, 1986; Lucas, 1988; Romer, 1990; Barro, Sala I Martin, 1995) propose that openness affect growth positively. They argued also that countries that are more open to the rest of the world have a greater ability to absorb technological advances generated in leading nations. Trade openness provides access to imported inputs, which embody new technology,

increase the effective size of the market, innovation and the intensive production (Krueger, 1980). Sebastian finds that more open countries experienced faster productivity growth. All of this process of openness starts from trade liberalization. Thus, the process of trade liberalization is expected to increase not only trade but also foreign direct investment (Fankem, 2017).

The theoretical link between trade openness, fdi and growth has been documented in the literature. Trade openness promotes growth since it enhances specialization and division of labor in production, this contributes to a more efficient allocation of domestic resources and improves productivity and will attract foreign capital (Sakyi, Commodore, Opoku, 2015). In addition to the attraction of foreign capital, the inflow of fdi is accompanied by transfer technology, innovation, increased production efficiency and improved of human capital. So it is believed that fdi have a positive effect on growth. During the process of trade liberalization, country lifts its barrier and therefore, major component of liberalization becomes trade openness and fdi. So these both variables have played an important role in the process of economic growth in the liberalized countries (Ekodo, 2017).

The famous Bhagwati hypothesis suggests that the long run growth impact of foreign direct investment will be greater in countries pursuing the export promotion strategy than those opting for the import substitution one. Thus, the growth effect of fdi and trade interaction is not automatic, but depends on various country specific factors such as the trade openness (Bhagwati, 1978). With the same idea, Asiedu

concluded that an efficient environment with more openness is likely to attract more Fdi for boost growth economic (Asiedu, 2002).

B-research empirical:

Research Empirical examining the impacts of trade openness and fdi on economic growth has also delivered ambiguous results. Alici and Ucal studied the effect of liberalization process on economic growth by investigating a Granger causal relationship between trade, Fdi and economic growth in turkey from 1987 to 2002. They found that export led the growth (Alici, Ucal, 2003). Yao found that both trade and fdi have a positive effect on economic growth (Yao, 2006). Hisarciklilar studied the relationship between fdi, economic growth and trade in some MENA countries. They found no causality between them for most of the Mediterranean countries (Hisarciklilar, Kayam, Kayalica, 2006). Baliamoune-Lutz found that the impact of fdi on economic growth is positive and the relationship between export and fdi is bidirectional. This result implies that fdi can promote exports in morocco (Baliamoune-Lutz, 2004). Rahman examined the effects of exports, fdi on the real GDP in India, Pakistan and Bangladesh. He found a cointegration relationship among the variables (Rahman, 2009). Alayala investigated the relationship between trade, fdi and economic growth for Jordan. He found a unidirectional causal effect from trade and Fdi to economic growth (Alalaya, 2010). Adhikary investigates the linkage between FDI, trade openness, capital formation, human capital, and economic growth rate in Nepal using the vector error correction (VEC) model. The study reveals that there is a long-run equilibrium

relationship between variables. Trade openness and FDI have a dynamic positive effect on the GDP per capita growth rate in Nepal. The study suggests that Nepal should adopt more liberalized trade policy to attract foreign capitals and to ensure stable economic growth rate (Adhikary, 2015). Xiaohui et al. examined the causal links between economic growth, trade and foreign direct investment in china at the aggregate level. They found long-run relationships between growth, exports, imports and fdi in a cointegration framework. They found also a bi-derctional relation between economic growth, fdi and exports. The result find that export and fdi increase trade openness (Liu, Burridge, Sinclair, 2002). Habibi examines the effects of trade openness on economic growth. He uses panel co integration tests and panel error-correction models (ECM) to explore the causal relationship between trade openness and economic growth for 120 countries over the period 2000-2013. The results of pedroni co integration test demonstrate that trade openness and economic growth is co integrated (Habibi, 2015). PAJOT et al. see that fdi increase the competitiveness level of the local markets. This will be increase trade openness and exports (FONTAGNÉ, PAJOT, 1999). Balasubramanyam et al. examines the role which foreign direct investment plays in the growth process in the context of developing countries characterized by differing trade policy regimes. They test the hypothesis advanced by Bhagwati of the beneficial effect of Fdi in terms of enhanced economic growth. They found that fdi has a positive effect on economic growth in host countries which have an export promoting strategy and not in countries which have an import substitution strategy (Balasubramanyam, Salisu,

Sapsford, 1996). Acet analyzes the relationship between trade openness and economic growth of Niger for the period of 1970-2015. The empirical results show that there is a bi-directional causality among variables in Niger economy (Acet, 2017). Naveed et al investigate the impact of Fdi and trade openness on per capita GDP growth by using data from 1971 to 2000 for 23 developed countries. They found that openness is significant and positively affecting GDP per capita growth, While FDI appeared to be insignificant. They also test the granger causality among these variables. Only openness does cause GDP and reverse causality does not hold (Naveed, Shabbir, 2006).

3. Methodology and data analysis:

Our study use annual time series over the period 1970-2015 to explore the long relationship between foreign direct investment, trade openness and economic growth. Based on the theoretical studies we choose these variables: (Y) annual per capita GDP growth rate to measure output; (FDI) to measure the net influx of Foreign Direct Investments in a country in a given year, it is expressed as a percentage of the country's GDP; (OPEN) to measure the economic openness it has been computed by dividing the sum of import and export of goods and services of a country by its GDP. (XRT) the exchange rate, and (GCF) the Gross capital formation. All variables are collected from World development indicators WDI (2017). Table (1) shows the descriptive statistics of the variables.

Table (1): Descriptive statistics of the variables

	Y	Fdi	Gcf	Open	Xrt
Mean	1.491214	0.709302	31.08465	58.42452	37.08331
Median	1.776685	0.606547	30.79138	60.13835	22.59074
Maximum	23.96859	2.710127	48.58504	76.68452	100.6914
Minimum	-13.76224	-0.244810	20.67724	32.68458	3.837450
Std.Dev	4.823962	0.687171	6.475067	11.02166	33.39855
Skewness	1.481014	0.785093	0.599302	-0.302532	0.247364
Kurtosis	13.22167	3.103914	2.844222	2.338246	1.322188
Jarque-Bera	217.0743	4.746207	2.800097	1.541039	5.864635
Probability	0.000000	0.093191	0.246585	0.462773	0.053273
Sum	68.59585	32.62789	1429.894	2687.528	1705.832
Sum Sq.Dev	1047.178	21.24918	1886.692	5466.460	50195.84
Observations	46	46	46	46	46

Note: Std.Dev and Sum Sq.Dev. denote, respectively, the standard deviation and the sum of squared deviation

This paper uses the Auto Regressive Distributed Lag (ARDL) approach advanced by Pesaran et al (2001) to examine the existence of long-run relationships, and the Error Correction Model (ECM) for the short-run relationships. The ARDL is becoming popular because of several advantages in comparison with other single equation cointegration procedures. It results from the ability to estimate the long and short-run parameters of the model simultaneously for the avoidance of the problems posed by non-stationary time series data. In addition, this approach does not require a prior determination of the order of the integration amongst the variables, unlike other approaches which require that the variables pose the same order of integration. Furthermore, the ARDL procedure is statistically much more

significant approach to determine the co integration relationship in small samples, which allows different optimal lags of variables (Hamuda, Šuliková, Gazda, 2013).

We use the following model in this paper:

$$\Delta Yt = \alpha 0 + \sum_{i=1}^{n} \alpha 1i\Delta Yt - 1 + \sum_{i=1}^{n} \alpha 2i\Delta Fdi\, t - 1 + \sum_{i=1}^{n} \alpha 3i\Delta Gcf\, t - 1$$
$$+ \sum_{i=1}^{n} \alpha 4i\Delta Open\, t - 1$$
$$+ \sum_{i=1}^{n} \alpha 5i\Delta Xrt\, t - 1 + \beta 1\, Y + \beta 2\, Fdi + \beta 3\, Gcf + \beta 4\, Open$$
$$+ \beta 5\, Xrt + \varepsilon i \dots (1)$$

Where:

Δ: Denotes the first difference operator. **α**: is the drift component; **εi**: is the white noise residuals.

* Unit test root

We applied unit test root Augmented Dickey –Fuller to check stationary of the variables. Once we confirm that all variables are integrated in the same order we can run an ARDL model. The results summarize in Table (2) indicate that all series are stationary at the first differences. Therefore, we can run an ARDL approach for testing the long-run relationship between these variables.

Table (2): Unit test root results

		Y	Fdi	Open	Xrt	Gcf
At level						
		Y	Fdi	Open	Xrt	Gcf
with constant	t-statistic	-8.69	-3.66	-1.79	0.63	-1.59
	prob	0.00***	0.008***	0.37 [no]	0.98 [no]	0.478 [no]
With constant and trend	t-statistic	-8.63	-3.89	-1.77	-2.47	-0.95
	prob	0.00***	0.02**	0.70 [no]	0.3376 [no]	0.93 [no]
Without constant and trend	t-statistic	-7.91	-1.23	0.08	1.78	0.09
	prob	0.00***	0.19 [no]	0.64 [no]	0.98 [no]	0.70 [no]
At First Difference						
		d(Y)	d(Fdi)	d(Open)	d(Xrt)	d(Open)
with constant	t-statistic	-12.28	-6.49	-5.009	-3.17	-5.73
	prob	0.00***	0.00***	0.0002***	0.028**	0.00***
With constant and trend	t-statistic	-12.26	-6.42	-4.97	-3.39	-4.70
	prob	0.00***	0.00***	0.0011***	0.065*	0.0025***
Without constant and trend	t-statistic	-12.39	-6.57	-5.054	-2.54	-5.79
	prob	0.00***	0.00***	0.00***	0.0121**	0.00***
Order of integration		I(1)	I(1)	I(1)	I(1)	I(1)

We move towards determining the co-integrating relationship among the variables. First, we select the optimal lag length based on Akaike Criterion .The results obtain in figure.1 indicate that the optimal model ARDL(2,3,3,3,3), two lag for growth, three lags for both Fdi, Gcf, Open and Xrt.

Figure.1: The optimal model using Akaike criterion

Akaike Information Criteria (top 20 models)
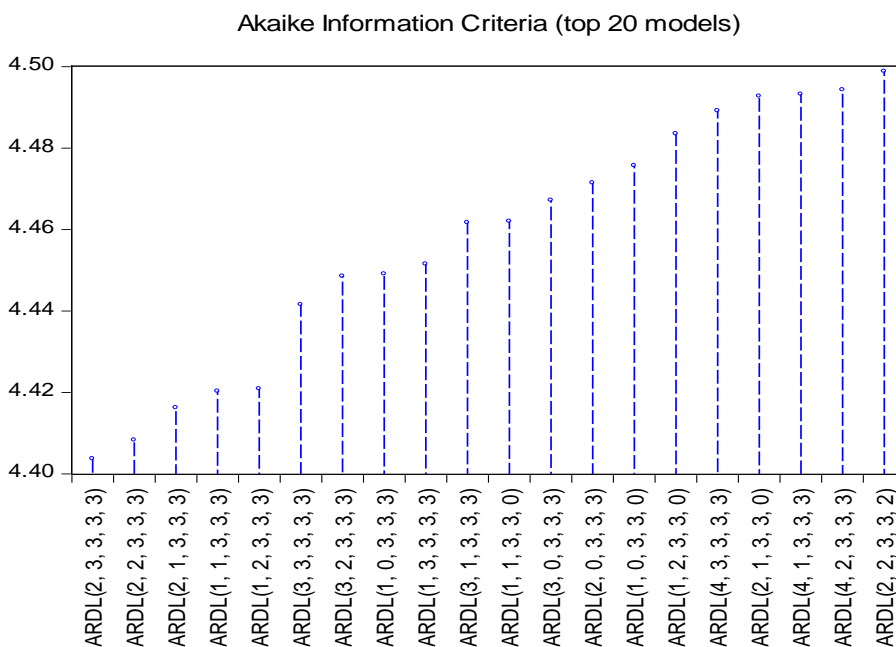
Table (3): Bounds test

F-Bounds Test	Null Hypothesis:No levels relationship			
Test Statistic	Value	Signif	I(0)	I(1)
F-statistic	3.959	10%	2.2	3.09
K	4	5%	2.56	3.49

| | | 2.5% | 2.88 | 3.87 |
| | | 1% | 3.29 | 4.37 |

Table (3) provides the results of Bound-test for testing the existence of long-run relationship among the variables. The findings suggest that the calculated F-statistic for the model is higher than the upper Bound critical value at 1%, 2.5%, 5%, and 10% just at 1% at I(1). So, we reject the null hypothesis of no co integration, means that there is a long run co-integration relationship amongst the variables.

Table (4): Estimated long run coefficients

Variable	Coefficient	Std.Error	t-statistic	Prob.
FDI	4.091	3.266	1.252	0.222
GCF	-0.224	0.275	-0.815	0.422
OPEN	0.143	0.144	0.995	0.329
XRT	-0.065	0.059	-1.096	0.283
C	-2.437	7.101	-0.343	0.734

Cointeq= Y- (4.09FDI - 0.224GCF + 0.143OPEN – 0.0651XRT) – 2.437

The long run results reported in table (4) indicate that economic growth as measured by the annual per capita GDP growth rate is associated positively with foreign direct investment and trade openness. Gross capital formation and exchange rate has a negative impact on economic growth.

Table (5): Estimation of Restricted Error Correction Model(ECM)

Aucune source spécifiée dans le document actif.Cointegrating form				
Variable	Coefficient	Std.Error	t-Statistic	Prob.
D(Y(-1))	-0.269	0.106	-2.540	0.017
D(FDI)	-1.500	0.814	-1.842	0.077
D(FDI(-1))	-0.876	0.786	-1.114	0.276
D(FDI(-2))	-1.088	0.897	-1.212	0.237
D(GCF)	-0.025	0.142	-0.180	0.858
D(GCF(-1))	0.731	0.194	3.760	0.001
D(GCF(-2))	-0.294	0.109	-2.682	0.013
D(OPEN)	-0.015	0.091	-0.170	0.866
D(OPEN(-1))	0.379	0.140	2.702	0.012
D(OPEN(-2))	-0.256	0.096	-2.646	0.014
D(XRT)	0.023	0.097	0.242	0.810
D(XRT(-1))	-0.091	0.175	-0.520	0.607
D(XRT(-2))	0.225	0.108	2.081	0.048
CointEq(-1)	-0.534	0.169	-3.162	0.0042

We use short-run version of ARDL to estimate the short dynamics of these variables. The sign of ECM should be negative and significant, that confirms the existence of stable long-run relationship. The ECM_{t-1} is equal to -0.53 and highly significant. This implies that the deviation from short run in economic growth is corrected by 53% percent over each year in a long span of time.

Various diagnostic tests on serial correlation and heteroscedassiticity, and normally were conducted to confirm the

efficiency of the model .Table (6) reveals that the estimates are free from serial correlation, heteroscedassiticity, and normally distributed).

Table (6): Diagnostic test

	Test statistic	P.value
Heteroscedasiticity	1.317	0.261
Normality (Jarque-Bera)	0.7039	0.7032
Serial correlation	1.114	0.138

The figures (2) show the cumulative sum of recursive residuals (CUSUM) and the cumulative of sum of squares of recursive residuals(CUSUMQ) plots. They show that the estimates reported above are structurally stable.

Figure.2: cumulative sum of recursive residuals and the cumulative of sum of squares of recursive

residuals.
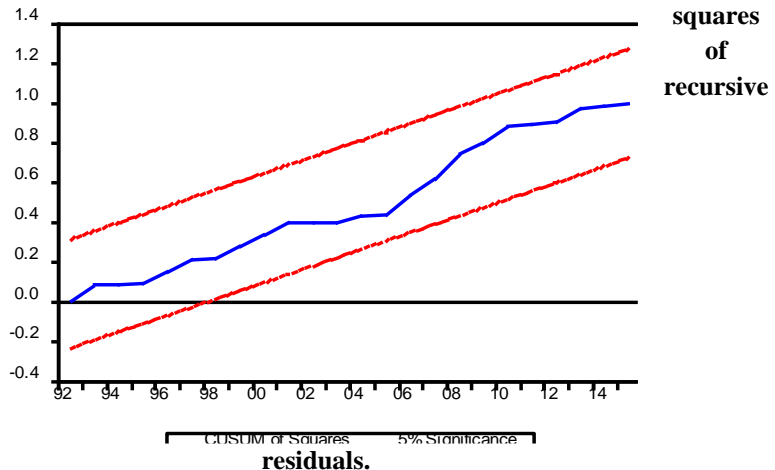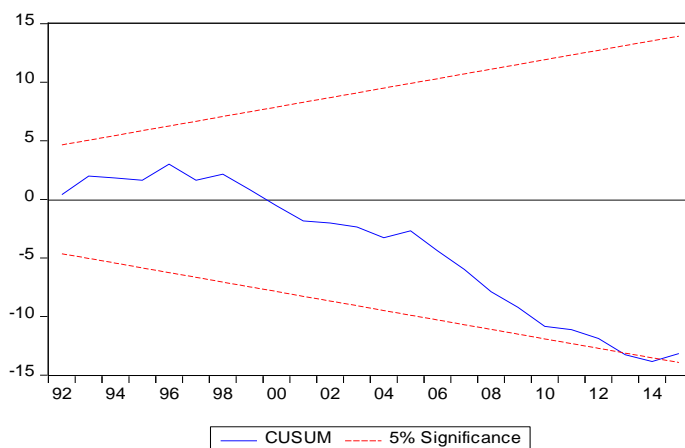
Conclusion:

In this study, we attempt to investigate the long-run relationship between economic growth as measured by the annual growth rate of GDP per capita, and foreign direct investment and trade openness over the period 1970-2015 in Algeria. By using ARDL approach to co integration analysis of Perasan et al (2001) we show that foreign direct investment has an insignificant positive impact on economic growth and openness effects economic growth negatively in Algeria in the period 1970-2015. Furthermore, by applying the CUSUM and CUSUMQ tests and various diagnostic tests of the model, we show that the model estimated above is structurally stable. Therefore, the results are reliably estimated.

The Algerian government has taken several measures to create an investment climate, make many adjustments to investment laws, create amendments legal conditions and legislatives favorable for investment and containing many of the financial incentives and

inducements. But a set of restrictions and obstacles hindering the development of this measures, which led to the reluctance of the foreign investor and thus shut out the outside world and slow economic growth. We can say also that the algerian strategy to liberate the foreign trade sector and to attract more FDI is a persistent failure because it has not allowed to develop and change the structure of the algerian economy by ensuring diversification of national production and non-hydrocarbon exports, Leading to a high degree of macroeconomic vulnerability especially in the current context of international economic crises and turmoil.

In summary, Algeria should review the measures put in place for the attractiveness of the FDI and openness because if it received more ideas, its industry would be diversified and create competitiveness with local products, which would increase the price-quality ratio, reduce the barriers to trade, and exports can be differentiated. Indeed, if non-hydrocarbon exports increase, economic growth will suffer.

Reference :

Acet, F. M. H., & Baoua, M. M (2017). An Empirical Analysis on the Relationship between Trade Openness and Economic Growth in Niger.

Adhikary, B. K. (2015). Dynamic Effects of FDI, Trade Openness, Capital Formation and Human Capital on the Economic Growth Rate in the Least Developed Economies: Evidence from Nepal. International Journal of Trade, Economics and Finance, 6(1), 1.

Alalaya, M. M. (2010). ARDL models applied for Jordan trade, FDI and GDP series. European Journal of Social Sciences, 13(4), 605-616.

Alıcı, A. A., & Ucal, M. Ş. (2003, September). Foreign direct investment, exports and output growth of Turkey: Causality analysis. In European Trade Study Group (ETSG) fifth annual conference, Madrid (pp. 11-13).

Asiedu, E. (2002). On the determinants of foreign direct investment to developing countries: is Africa different?. World development, 30(1), 107-119.

Balasubramanyam, V. N., Salisu, M., & Sapsford, D. (1996). Foreign direct investment and growth in EP and IS countries. The economic journal, 92-105.

Baliamoune-Lutz, M. N. (2004). Does FDI contribute to economic growth? Knowledge about the effects of FDI improves negotiating positions and reduces risk for firms investing in developing countries. Business Economics, 39(2), 49-57.

Bechtini, M., & Hassen, L. B. (2018). l'impact de l'ouverture sur la croissance économique en Tunisie. Revue des Etudes Multidisciplinaires en Sciences Economiques et Sociales, (8).

Belloumi, M. (2014). The relationship between trade, FDI and economic growth in Tunisia: An application of the autoregressive distributed lag model. Economic Systems, 38(2), 269-287.

Bhagwati, J. N. (1978). Anatomy of Exchange Control Regimes. In Anatomy and Consequences of Exchange Control Regimes(pp. 7-52). NBER.

Blomström, M., & Persson, H. (1983). Foreign investment and spillover efficiency in an underdeveloped economy: evidence from the Mexican manufacturing industry. World development, 11(6), 493-501.

Borensztein, E., De Gregorio, J., & Lee, J. W. (1998). How does foreign direct investment affect economic growth? 1. Journal of international Economics, 45(1), 115-135.

Chiatchoua, C., Santibanez, A. L. V., & Castillo, O. N. (2017). Impact du rapatriement des benefices de l'investissement direct étranger (ide) américain en Amérique latine. Vie & Sciences de l'Entreprise, (203), 22-43.

Edwards, S. (1998). Openness, productivity and growth: what do we really know?. The economic journal, 108(447), 383-398.

Ekodo, R., & Nkot, S. C. (2017). Investissement Direct Etranger et Commerce Extérieur au Cameroun. Journal of International Business and Economics, 5(1), 20-32.

Fankem, G. S. G. (2017). Régime politique et ouverture commerciale. Revue d'économie politique, 127(3), 423-454.

Findlay, R. (1978). Relative backwardness, direct foreign investment, and the transfer of technology: a simple dynamic model. The Quarterly Journal of Economics, 92(1), 1-16.

Fontagné, L., & Pajot, M. (1999). Investissement direct à l'étranger et échanges extérieurs: un impact plus fort aux Etats-Unis qu'en France. Economie et statistique, 326(1), 71-95.

Habibi, F. (2015). Does Trade Openness Influence Economic Growth. International Journal of Economics and Business Administration, 1(2), 120-127.

Hamuda, A. M., Šuliková, V., Gazda, V., & Horváth, D. (2013). ARDL investment model of Tunisia. Theoretical & Applied Economics, 20(2).

Hisarciklilar, M., Kayam, S. S., & Kayalica, O. (2006). Locational Drivers of FDI in MENA Countries: a spatial Attempt.

Kokko, A. (1994). Technology, market characteristics, and spillovers. Journal of development economics, 43(2), 279-293.

Koskei, N. S. I., Buigut, K., & Kibet, J. (2013). Impact of openness, foreign direct investment, gross capital formation on economic growth in Kenya.

Krueger, A. O. (1980). Trade policy as an input to development.

Ladifatou, G. N. G., & Paulin, D. D. G. (2018). Ouverture Commerciale Et Croissance Economique au Cameroun. Global Journal of Human-Social Science Research.

Liargovas, P. G., & Skandalis, K. S. (2012). Foreign direct investment and trade openness: The case of developing economies. Social indicators research, 106(2), 323-331.

Liu, X., Burridge, P., & Sinclair, P. J. (2002). Relationships between economic growth, foreign direct investment and trade: evidence from China. Applied economics, 34(11), 1433-1440.

Lucas, R. E. (1998). On the mechanics of economic development. Econometric Society Monographs, 29, 61-70.

Naveed, A., & Shabbir, G. (2006). Trade openness, FDI and economic growth: A panel study. Pakistan Economic and Social Review, 137-154.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. Journal of applied econometrics, 16(3), 289-326.

Rahman, M. (2009). Contributions of exports, FDI, and expatriates' remittances to real GDP of Bangladesh, India, Pakistan, and Sri Lanka. Southwestern Economic Review, 36(1), 141-54.

Reggad, S. (2008). Foreign Direct Investment: The Growth Engine to Algeria. Korea Review of International Studies, 11(1), 79-98.

Romer, P. M. (1986). Increasing returns and long-run growth. Journal of political economy, 94(5), 1002-1037.

Romer, P. M. (1990). Endogenous technological change. Journal of political Economy, 98(5, Part 2), S71-S102.

Roubini, N., & Sala-i-Martin, X. (1995). A growth model of inflation, tax evasion, and financial repression. Journal of Monetary Economics, 35(2), 275-301.

Sakyi, D., Commodore, R., & Opoku, E. E. O. (2015). Foreign direct investment, trade openness and economic growth in Ghana: An empirical investigation. Journal of African Business, 16(1-2), 1-15.

Wacziarg, R. (2001). Measuring the dynamic gains from trade. The world bank economic review, 15(3), 393-429.

Yao, S. (2006). On economic growth, FDI and exports in China. Applied Economics, 38(3), 339-351.

Yaoxing, Y. (2010). The relationship between foreign direct investment, trade openness and growth in Cote d'Ivoire. International Journal of Business and Management, 5(7), 99-107.